PBMA Process Based Mission Assurance Knowledge Management System

PBMA-KMS Future State

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Introduction

- What is PBMA?
  - Structured Content
    - 8x5 Mission Success Framework
    - Best Practices
    - Video Nuggets
    - Case Studies
  - Functional Elements
    - Standard Security Work Groups (being migrated to ESWG)
    - Enhanced Security Work Groups
    - Secure Meeting
    - Knowledge Registry

Process Based Mission Assurance (PBMA) Framework

A Systems Approach for Safety & Mission Success Management

	Formulation			Implementation				
Project Phase / Elements	1.0 Program Management	2.0 Concept Development	3.0 Acquisition	4.0 Hardware Design	5.0 Software Design	6.0 Manufacturing	7.0 Pre-Ops Int & Test	8.0 Operations
.1 Policies - *Rules and Guidelines We Need To Follow*	1.1 - NPD 8700.1 - NPD 7120.4B - NPG 7120.5A - Public Law 105-275	2.1 - NPG 7120.5A - Human Rating - Payload Safety - Tech Standards - Vol. & Consensus Standards	3.1 - R-BAM - FAR - NASA FAR Sup - NPG 7120.5A - OMB Circulars - DoD 5000	4.1 - NPG 7120.5A - NPD 8710.5 and subs - NPD 8730.3 and subs - Orbital Debris - Human Rating	5.1 - NPG 7120.5A - NASA-STD-8719.13A - NPD 8730.3 and subs - IV&V - Tech Transfer	6.1 - NPG 7120.5A - NPD 8730.3 and subs - NEQA Docs - Tech Standards - Vol. & Consensus Standards	7.1 - NPG 7120.5A - NPD 8610.24A - ELV Policies - Vol. & Consensus Standards	8.1 - NPG 7120.5A - Nuclear Safety - Planetary Protect - Orbital Debris - EWR 127-1 - Range Cmd Council (RCC)
.2 Planning - *Defining and Organizing the Things We Need To Do*	1.2 - Program Plans - S&MA Plan - Risk Mgmt Plan - Program Safety - QA Plan - Config Mgmt Plan	2.2 - Life Cycle Req's Planning - Long Lead Compliance	3.2 - Develop SOW - Acq Strategy Plan - Contractor Surveillance Plan	4.2 - Concurrent Eng Plan - System Spec - Design Req Mgmt Plan - Material & Parts Plan	5.2 - Software Dev Mgmt Plan	6.2 - Work Review Plans - Supply Chain Mgmt Plan - Trans Handling and Storage Plan - Contam Control	7.2 - Develop Integ & Test Req's - Pre-Ops Int & Test Plan	8.2 - Flt Safety Assur Planning - Range Safety - Grnd Ops Safety - Ops FMEA - Emergency Prep - Contingency Plan
.3 Processes - *Doing the Things We Need To Do*	1.3 - Resource Mgmt - Schedule Mgmt - Doc and Data Mgmt System	2.3 - Req's Analysis - Functional Analysis & Alloc - Perf Metrics - WBS - Verif Concept	3.3 - Develop Acq. Instruments - Acq. Lessons Learned	4.3 - Implement Adv Quality - Design-for-X - Human Factors - Tools & Techniques	5.3 - Software FMEA - Human Factors - Tools & Techniques	6.3 - Implement Adv Quality	7.3 - Flight H/W & S/W Integrated Testing - Conduct Demo, Inspections - SMA Verification Activities - Working Groups	8.3 - Environ Impact Assessment - Safety & Risk Trend Analysis - Real-Time Ops Support
.4 Program Control - *Checks and Balances*	1.4 - Implement Config Mgmt - Milestone Review - Implement Msn Success Plans - Employ IA	2.4 - Concept Dev Reviews - Risk Assess Reviews - Science Theme Conformance	3.4 - Implement R-BAM - Train Source Eval Board - Due Diligence - Tools & Techniques	4.4 - Sys Safety Hazard Analysis - Design Verif Processes - Employ IA	5.4 - Process Maturity (CMM) - S/W Safety and Hazard Analyses - Milestone Rev's - Design Verif - Employ IA	6.4 - Change Control - Process Capab - Work Control Processes - Material Review Board - Employ IA	7.4	8.4 - Ops Readiness Reviews - IA of Ops Readiness
.5 Verification and Testing	1.5 - Program Team Capabilities - Cost/Resource Balance - Pgm Reserves and Margins	2.5	3.5	4.5 - Verif. Plan - Conduct Analysis, Demonstration, Similarity, Inspection, Modeling & Sim	5.5 - S/W Verification Test Plan - Formal Methods - Conduct Testing	6.5 - Verification Plan - Conduct Test, Demonstration	7.5	8.5

Pre-Ops Int & Test inherent control & verif functions

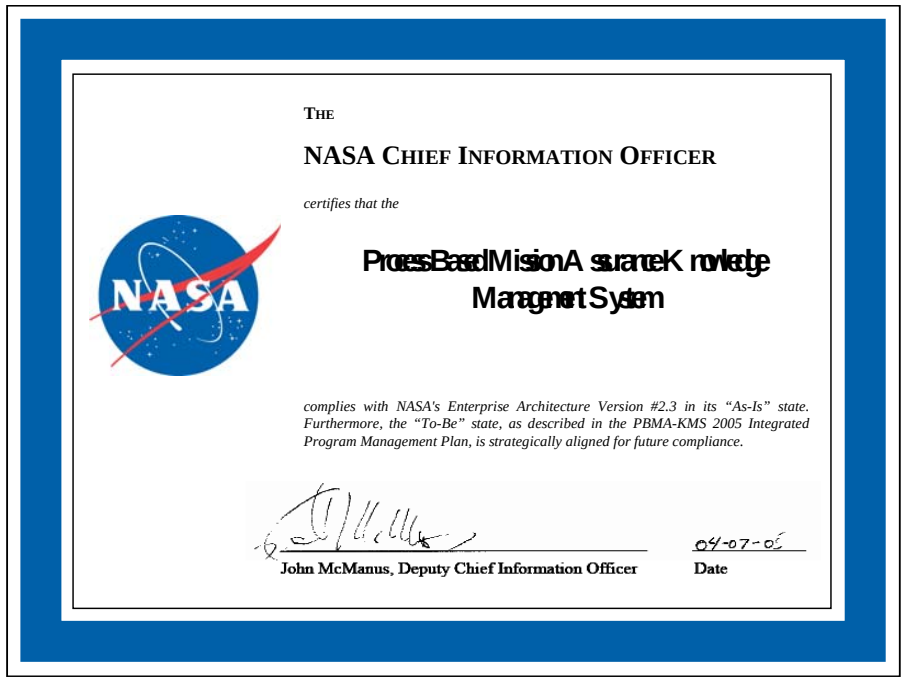
Verification implicit in control processes

Verification implicit in control processes

Recent Changes to PBMA

- Movement to the *NASA Portal* design
  - Moved from a flat-file structure to a completely relational data structure
  - All data is tagged (with open potential for limitless tagging variations)

- Enterprise Architecture
  - Recognized by the CIO as being in compliance with NASA's Enterprise Architecture as a Knowledge Management System



THE

NASA CHIEF INFORMATION OFFICER

certifies that the

Program Management System

complies with NASA's Enterprise Architecture Version #2.3 in its "As-Is" state. Furthermore, the "To-Be" state, as described in the PBMA-KMS 2005 Integrated Program Management Plan, is strategically aligned for future compliance.

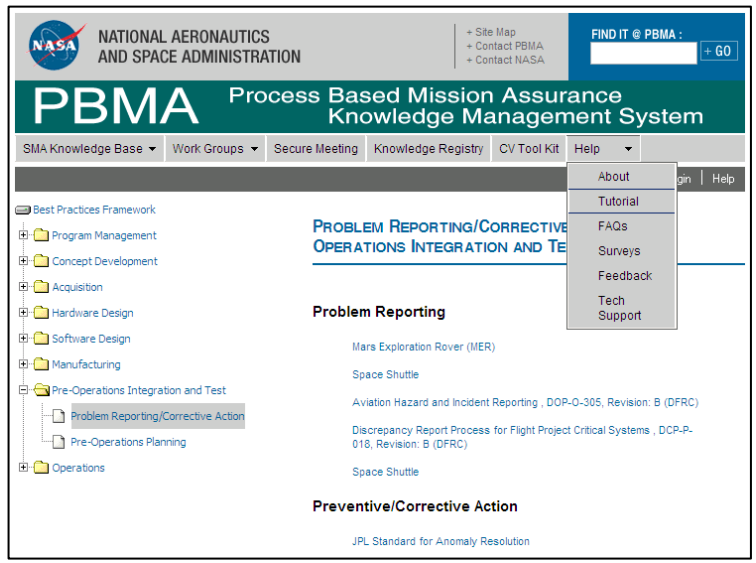
John McManus, Deputy Chief Information Officer

04-07-05

Date

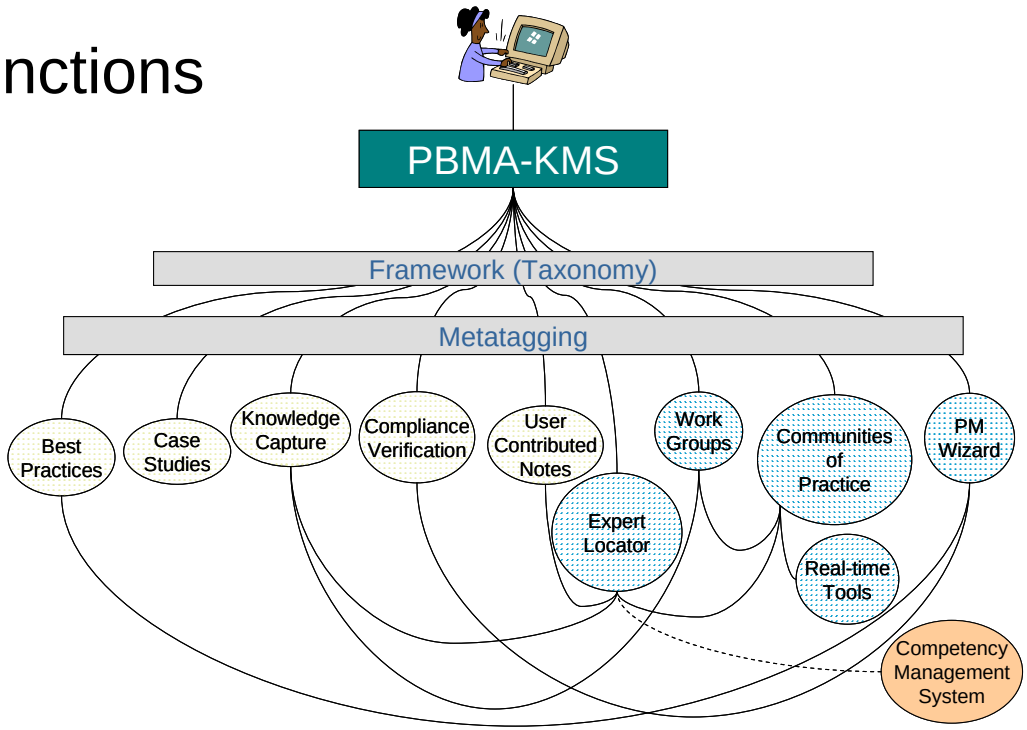
UI Version 2.0

- Listening to user feedback
  - Users drive requirements
- Portal Affinity
  - Altering the 100% NASA Portal design to accommodate the unique PBMA content
  - Content density will not be sacrificed
  - Standardized Navigation



Future State

- All content is tagged in the back-end
  - Need to leverage this for forward development
  - Base delivery and search functionality on user's needs
- Link all content and functions
- Developing content at a deeper level
  - Go to the Engineering level
- Inclusion of legacy SMA docs



Steering for the curve ahead…

- Make the KMS the top-level aggregator over all PBMA functionalities
  - Pull content from the CoPs (through the ESWG API)
  - Pull content from the KR
- As future products are integrated (specifically COTS), ensure that all product lines can communicate
- Build relationships
  - Develop a standards based interface (REST/XML) to facilitate sharing of content with other sites
  - Identify other systems that could benefit from PBMA
  - Identify other systems that PBMA could benefit from